

Applying a General Spacecraft Power Subsystem Architecture to Perform Multimission Simulation

By Peter R. Glück and Sergio Morales

Automation and Control Section
Jet Propulsion Laboratory
California Institute of Technology

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ABSTRACT

The Jet Propulsion Laboratory's (JPL's) Multimission Spacecraft Analysis System (MSAS) Project is developing a spacecraft operations analysis system that facilitates rapid reconfiguration for future missions. A multimission simulation system must provide adequate fidelity to operators of a given supported mission, but cannot be so mission-specific that it is not readily and easily modified for other supported missions. In furtherance of this effort, a general spacecraft power subsystem architecture was developed [Glück, et al., 1995]. This general architecture demonstrated that a spacecraft power subsystem can be described in a multimission context, and provides a framework for the simulation of such a system. The MSAS Power and Pyrotechnic Subsystem (PPS) simulation has now been completed through the second phase of its development. This paper describes application of the general architecture to the specific task of creating a multimission spacecraft power subsystem simulation. It illustrates how elements of the general architecture were grouped in an application-appropriate manner, and how the resulting simulation system satisfies both mission-specific and multimission requirements.